

VASIL'KOV, I.

Coal Trade - Europe

Inter-European coal trade. Vnesh.torg. no. 4, 1952.

Monthly List of Russian Accessions, Library of Congress, June 1952. Unclassified.

VASILKOV, I.

CZECHOSLOVAKIA/Cosmochemistry. Geochemistry.  
Hydrochemistry.

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Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26606 K.

Author : Vasilkov, I., Cejtin, M.

Inst :                     

Title : Sunstone.

Orig Pub : Z. rus. Praha, Mlada fronta, 1954, 198 /6/  
str., il., 25, 15 Kčs.

Abstract : No abstract.

Card 1/1

~~VASIL'KOV, Izor' Afanas'yevich; TSEYTLIN, Mark Zakharovich; ABRAMOV, V.I.,~~  
red.izd-va; KANASKOVA, I.R., tekhn.red.

[Biography of a machine; stories of Soviet coal cutter loaders]  
Biografiia odnoi mashiny; rasskazy o sovetskikh ugol'nykh  
kombainakh. Moskva, Ugletekhizdat, 1955. 97 p. (MIRA 11:6)  
(Coal mining machinery)

Vasil'kov, Igori

N/5  
785.2  
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Ischeznuvshiy ostrov (Vanishing island) Moskva, Izd-vo "Molodaya  
Gvardiya", 1955.  
160 p. illus., map.

VASIL'KOV, Igor'

Hunters for the solar rock. Vokrug sveta no.6:2-7 Je '55.  
(Coal mines and mining) (MLBA 8:9)

VASIL'KOV, Igor'

Treasures of the Cambrian. Vokrug sveta no.9:2-6 S'55. (MLRA 8:12)  
(Petroleum geology)

VASIL'KOV, Igor'.

An underground battle. Znan.sila 31 no.2:19-23 Y '56. (MLRA 9:5)  
(Coal mines and mining) (Coal mining machinery)

VASIL'KOV, I.

Victory over the desert. Tekh.mol. 25 no.10:29-31 0 '57. (MIRA 10:10)  
(Golodnaya Stepps--Irrigation) (Bet-Pak-Dala--Irrigation)



VASIL'KOV, I.

After the interruption of navigation through the Suez Canal [with  
summary in English, p.41]. Vnesh. torg. 27 no.2:9-12 '57.  
(Commerce) (Suez Canal) (MIRA 10:4)

VASIL'KOV, I.; ARMANGOL, L.; KUMKES, S.; KOLOSOVA, Yu.; TIKHOMIROV, V.P.,  
otvetstvennyy red.; CHIZHOV, N.N., red.; VILNISKAYA, E.N., tekhn.  
red.

[Cuba, Haiti, Dominican Republic, Puerto Rico, Jamaica] Kuba, Gaiti,  
Dominikanskaya respublika, Puerto-Riko, Iamaika. Moskva, Gos. izd-  
vo geogr. lit-ry, 1958. 23 p. (MIRA 11:8)  
(West Indies)

VASIL'KOV, I.A.; TSEYTLIN, M.Z.; TERPIGOREV, A.M., akademik, redaktor.

[Stored solar energy] Kladovye solntsa. Pod red. A.M.Terpigoreva. Moskva,  
Gos.izd-vo tekhniko-teoret.lit-ry, 1952. 63 p. (MLRA 6:7)  
(Coal)

*General Note: ...*  
VASIL'KOV, Ivan Semenovich; GORTINSKIY, S.M., red.; IGLITSYN, I.L., red.;  
~~MEDVEDEV~~, L.Ya., tekhn.red.

[Development of electric power engineering in the U.S.S.R. during  
the last 40 years] Razvitie elektroenergetiki SSSR za 40 let.  
Moskva, Gos. energ. izd-vo, 1957. 79 p. (MIRA 11:3)  
(Electrification)

VASIL'KOV, Igor' Afanas'yevich; BAVINA, V.V., red.; NAZAROVA, A.S.,  
tekhn. red.

[Logic and poetry; science and the art of motion pictures]  
Logika i poeziia; nauka i kinoiskusstvo. Moskva, Izd-vo  
"Znanie," 1962. 62 p. (Novoe v zhizni, nauke, tekhnike.  
IV Seriya: Literatura i iskusstvo, no.19-20) (MIRA 15:10)  
(Motion pictures in science)

VASIL'KOV, Igor' Afanas'yevich; KOROL'KOVA, T.Ye., red.; GORINA,  
V.A., tekhn. red.

[With a motion-picture camera in the world of insects; scenario]  
S kinoapparatom v mire nasekomykh; stsennarii. Moskva, Iskusstvo,  
1962. 133 p. (MIRA 15:12)  
(Motion pictures in science) (Insects)

USSR/Farm Animals. Horses.

Q

Abstr Jour: Ref Zhur-Biol., No 20, 1956, 92560.

Author : Vasil'kov, M.

Inst : *Inst. of Animal Husbandry, Moscow*

Title : Problems of Feeding Young Work Horses.

Orig Pub: Konevodstvo, 1957, No 11, 33-37.

Abstract: The degree of utilization of nutrient substances and their activity and need was established for working horses 3-4 years old in combination with winter and summer types of feed. Certain diets are recommended.

Card : 1/1

VASIL'KOV, M. S., Cand Agr Sci -- (diss) "Utilization of nutritive *substances of*  
rations by young work horses in winter and summer types of feeding."  
Mos, 1958. 16 pp (Min of Agriculture USSR, Mos Vet Acad), 140 copies  
(KL, 15-58, 117)

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VASIL'KOV, Nikolay Pavlovich; DOBRIN, K.S., red.; BELIAYEV, N.A., tekhn.red.

[Monopolistic capital in Italy; after the Second World War] Mono-  
polisticheski kapital Italii; posle Vtoroi Mirovoi voyny. Moskva,  
Izd-vo In-ta mezhdunarodnykh otnoshenii, 1959. 185 p. (MIRA 12:5)  
(Italy--Economic conditions)

ZHAMIN, V.A., prof.; GLUKHAREV, L.I., kand. ekonom. nauk; FUCHKOV, A.N., dotsent, kand. ekonom. nauk; FAMINSKIY, I.P.; KURAKIN, N.A., kand. ekonom. nauk; IVANOV, N.N., kand. ekonom. nauk; SMIRNOV, G.V., dotsent, kand. ekonom. nauk; VASIL'KOV, N.P., kand. ekonom. nauk; ~~VASIL'KOV, N.P., kand. ekonom. nauk~~; LUK'YANOVA, M.I., prof., doktor ekonom. nauk; OZIRA, V.Yu., red.; LAZAREVA, L.V., tekhn. red.

[Characteristics of developing industrial production in capitalist countries] Osobennosti razvitiia promyshlennogo proizvodstva v kapitalisticheskikh stranakh. Pod red. V.A.Zhamina. Moskva, Izd-vo Mosk. univ., 1961. 239 p. (MIRA 15:2)

1. Moscow. Universitet. Ekonomicheskii fakul'tet. Kafedra ekonomiki zarubezhnykh stran.

(Industry)

GLUSHKOV, V.P., kand. ekon. nauk; POKROVSKIY, A.I., kand. ekon. nauk; VEBER, A.B., kand. istor. nauk; VASIL'KOV, N.P., kand. ekon. nauk; ARDAYEV, G.B., kand. ekon. nauk; TIMASHKOVA, O.K., kand. ekon. nauk; KHMEL'-NITSKAYA, Ye.L., doktor ekon. nauk, otv. red.; PANTELEYEV, V.I., red. izd-va; RYLINA, Yu.V., tekhn. red.

[Government ownership in Western Europe] Gosudarstvennaia sobstvennost' v stranakh Zapadnoi Evropy. Moskva, Izd-vo Akad. nauk SSSR, 1961. 463 p. (MIRA 14:11)

1. Akademiya nauk SSSR Institut mirovoy ekonomiki i mezhdunarodnykh otnosheniy. 2. Sektor stran Zapadnoy Yevropy Instituta mirovoy ekonomiki i mezhdunarodnykh otnosheniy AN SSSR (for all except Panteleyev, Rylina).

(Europe, Western-Government ownership)

KHMEL'NITSKAYA, Ye.L., doktor ekon. nauk, prof.; LEMIN, I.M., doktor  
ist. nauk; MAKSIMOVA, M.M., kand. ekon. nauk; GONCHAROV, A.N.,  
kand. ekon. nauk; VASIL'KOV, N.P., kand. ekon. nauk; VAL'KOV,  
V.V., kand. ekon. nauk; KOLLONTAY, V.M., kand. ekon. nauk;  
ETINGER, Ya.Ya., kand. ekon. nauk; DALIN, S.A., kand. ekon. nauk;  
PUSHKIN, A.A., mlad. nauchnyy sotr.; MOROZOV, V., red.;  
MOSKVINA, R., tekhn. red.

[Economic problems of the "Common Market."] Ekonomicheskie prob-  
lemy "Obshchego rynka." Moskva, Sots'ekgiz, 1962. 510 p.

(MIRA 16:3)

1. Akademiya nauk SSSR. Institut mirovoy ekonomiki i mezhdunarod-  
nykh otnosheniy. 2. Institut mirovoy ekonomiki i mezhdunarodnykh  
otnosheniy Akademii nauk SSSR (for all except Morozov, Moskvina).  
(European Economic Community)

BESSONOV, S.A.; VASIL'KOV, N.P., kand. ekon. nauk; VLASOV, V.A., kand. ekon. nauk; GLUKHAREV, L.I., kand. ekon. nauk; DANILEVICH, M.V., doktor ekon. nauk; ZHAMIN, V.A., doktor ekon. nauk, prof.; ZAKHMATOV, M.I., kand. ekon. nauk; KURAKIN, N.A., kand. ekon. nauk; PANOV, V.P.; SMIRNOV, G.V., kand. ekon. nauk, dots.; TRIFONOV, V.I., kand. ekon. nauk; TYAGAY, Ye.Ya.; FAMINSKIY, I.P.; KHODOV, L.G.; SHMIDT, G.A., kand. ekon. nauk, dots.; SHMIGOL', N.N., kand. ekon. nauk, dots.; MATSUK, R.V., red.; GARINA, T.D., tekhn. red.

[The economy of foreign countries; the capitalistic system of the world economy after the Second World War] Ekonomika zarubezhnykh stran; kapitalisticheskaya sistema mirovogo khozaystva posle Vtoroi Mirovoi voyny. Pod red. V.A. Zhamina. Moskva, Vysshaya shkola, 1962. 632 p. (MIRA 16:1)  
(Economic history)

KHMEL'NITSKAYA, Ye.L., prof., doktor ekon. nauk; VOLKOV, M.Ya.,  
kand. ekon. nauk; BEL'CHUK, A.I., kand. ekon. nauk; IORDANSKAYA,  
E.N., ml. nauchn. sotr.; MENZHINSKIY, Ye.A.; PAVLOVA, M.A.,  
kand. ekon. nauk; VASIL'KOV, N.P., kand. ekon. nauk; ARDAYEV,  
G.B., kand. ekon. nauk; VAL'KOV, V.A., kand. ekon. nauk;  
TIMASHKOVA, O.K., kand. ekon. nauk; ANDREYEV, Yu.K., ml. nauchn.  
sotr.; PUSHKIN, A.A., ml. nauchn. sotr.; MAKSIMOVA, M.M., kand.  
ekon. nauk; KIRSANOV, A.V., kand. ekon. nauk; SHEBANOV, A.N.,  
ml. nauchn. sotr.

[Changes in the economic structure of the countries of Western  
Europe] ~~Izmeneniya~~ v ekonomicheskoi strukture stran Zapadnoi  
Evropy. Moskva, Nauka, 1965. 433 p. (MIRA 18:9)

1. Akademiya nauk SSSR. Institut mirovoy ekonomiki i mezhdunarodnykh otnosheniy.

VASIL'KOV, P.V.

Serious shortcomings of rail-drilling machinery. Put' 1 out. Khoz.  
no. 8:42 Ag '58. (MIRA 11:8)

1. Zaveduyushchiy masterskimi, stantsiya Moskva-Smolenskaya, Kalininskoye  
dorogi.

(Railroads--Rails)  
(Drilling and boring machinery)

VASIL'KOV, P.V., master mekhanicheskikh masterskikh

Improve the quality of track maintenance equipment. Put' 1  
put.khoz. 6 no.12:20-21 '62. (MIRA 16:1)  
(Hydraulic jacks)



21(7)

AUTHORS:

~~Vasil'kov, R. G.~~; Govorkov, B. B.,  
Gol'danskiy, V. I.

SOV/56-37-1-2/64

TITLE:

The Photoproduction of Neutral  $\pi$ -Mesons on Hydrogen at Energies of  $\gamma$ -Quanta From Threshold to 240 Mev (Fotorozhdeniye neytral'nykh  $\pi$ -mezonov na vodorode pri energiyakh  $\gamma$ -kvantov ot poroga do 240 MeV)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 1, pp 11-22 (USSR)

ABSTRACT:

The authors describe investigations of the angular distribution and the energy dependence of the reaction (1):  
 $\gamma + p \rightarrow \pi^0 + p$  for  $E_\gamma$  between the threshold of the photoproduction (145 Mev) of the neutral pions and 240 Mev; the angular distribution at energies near threshold (asymmetric because of interference between S- and P-wave) is described by the formula  $d\sigma/d\Omega = A + B\cos\theta + C\cos^2\theta$ ; the coefficients A, B, and C correspond to the contributions of the E1-, M1-, and E2-absorption of  $\gamma$ -quanta. The energy dependence of A, B, and C near the threshold of pion-photoproduction is investigated. Experiments were carried out on the synchrotron of the

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The Photoproduction of Neutral  $\pi$ -Mesons on Hydrogen  
at Energies of  $\gamma$ -Quanta From Threshold to 240 Mev

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FIAN (265 Mev); Figure 1 gives a schematical representation of the experimental arrangement. The first of the five discussed possibilities of observing pion-photoproduction (i.e. recording of the single  $\gamma$ -quanta of  $\pi^0$ -decay) is selected. Recording is carried out by means of two telescopes (90 and 135° or 45 and 90°) consisting of 4 scintillation counters. Measurements were carried out for seven values of the maximum energy of bremsstrahlung in the channels: 130, 150, 170, 190, 210, 230, and 250 Mev. The examination results are shown by diagrams and tables. Figure 2 shows the energy dependence of the  $\gamma$ -quanta originating from  $\pi^0$ -decay for the angles 45, 90, and 135° in the laboratory system (exponential increase of the  $\gamma$ -yield with increasing energy); figure 3 shows the dependence of the coefficients a, b, c, of formula (3)  $N(\theta_\gamma) = a(\theta_\gamma)A + b(\theta_\gamma)B + c(\theta_\gamma)C$  upon  $E_\gamma$ , and in table 1 the values of A, B, C, and  $\sigma_{tot}$  are given for  $E_\gamma = 160, 180, 200, 220, \text{ and } 240$  Mev. Thus the following was measured for 240 Mev:  $A = 8.4 \pm 0.2$ ,  $B = 0.9 \pm 0.2$ ,  $C = 6.0 \pm 0.6$  ( $10^{-30} \text{ cm}^2/\text{steradian}$ ) and  $\sigma_{tot} = (8.1 \pm 0.3) \cdot 10^{-29} \text{ cm}^2$ .

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at Energies of  $\gamma$ -Quanta From Threshold to 240 Mev

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Figure 4 shows A, B, and C as functions of  $E_\gamma$ . For higher energies (of up to 450 Mev) the data were obtained from the papers of references 3 and 4. A has a maximum at about 320 Mev, C is entirely in the negative and has a minimum at the same place; B, at about 260 Mev, goes over from the negative to the positive. Figure 5 shows the energy dependence of the total cross sections of the  $\pi^0$ -mesons on protons (part of the data was obtained from references 2 and 4); the curve has a maximum at about 325 Mev; figure 6 shows the shape of the angular distribution of pions for  $E_\gamma$  between 160 and 450 Mev. In conclusion, the results obtained are discussed (comparison of the data relating to  $\pi^+$ - and  $\pi^0$ -photoproduction near threshold, phenomenological analysis - table 2 -, ratio B/A - figure 7, ratio C/A - figure 8; comparison of the results with those obtained by other authors); in an appendix the authors describe a kinematic treatment of the method of recording (1) according to the results obtained by investigating the individual decay proton. The authors finally thank V. V. Pavlovskaya, O. A. Karpukhin, A. V. Kutsenko, and I. A. Yerofeyev for

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The Photoproduction of Neutral  $\pi$ -Mesons on Hydrogen at Energies of  $\gamma$ -Quanta From Threshold to 240 Mev. SOV/56-37-1-2/64

their assistance in carrying out experiments as well as for their advice and discussions. There are 9 figures, 2 tables, and 22 references, 4 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR)

SUBMITTED: January 23, 1959

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'21'(7)

AUTHORS:

Vasil'kov, R. G., Govorkov, B. B.

SOV/56-37-1-57/64

TITLE:

Total Photoproduction Cross Section of  $\pi^0$ -Mesons on Protons at Low Energies (Polnoye secheniye fotorozhdeniya  $\pi^0$ -mezonov na protonakh pri nizkikh energiakh)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 1, pp 317 - 318 (USSR)

ABSTRACT:

In continuation of two earlier papers, the total photoproduction cross section of neutral pions of the threshold energy of primary  $\gamma$ -quanta up to 245 Mev were measured; the experiments took place at the synchrotron (265 Mev) of the FIAN USSR; liquid hydrogen served as a target. The method was described by reference 1. The authors used a telescope, which is arranged at an angle of  $90^\circ$  to the primary photon beam; it simultaneously measured the yield curve of the decay quanta of the threshold energy up to 250 Mev (above 10 Mev). The widening of the maximum energy of the spectrum of bremsstrahlung was  $\pm 1$  Mev; measurement of the yield curve was carried out with a statistical error of 2-3%, the background is given as 8-10%. The dependence of the production cross section of the decay quanta on photon energy and on the yield curve was measured by means of the meth-

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Total Photoproduction Cross Section of  $\pi^0$ -Mesons on Protons at Low Energies SOV/56-37-1-57/64

od of the "difference of photons" (Ref 3). The experimental  $\sigma_t$ -values obtained by the authors are compared with those obtained theoretically by Chew et al. (Ref 4) (drawn-out curve); agreement is very good. The slight deviations within threshold range (up to 180 Mev) are indicative of a contribution made by E1-transitions to  $\sigma_t$ . The course taken by the curve  $\sigma_t(h\nu)$  obtained by the authors also agrees well with that obtained in reference 3, with the exception that the latter is lower by about 30%. The authors finally thank I. A. Yerofeyev for his assistance in carrying out measurements and dealing with experimental data, and they also thank V. I. Gol'danskiy and A. M. Baldin for their valuable advice. There are 1 figure and 5 references, 2 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR  
(Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR)

SUBMITTED: April 17, 1959  
Card 2/2

VASIL'KOV, R.G.; GOVORKOV, B.B.; GOL'DANSKIY, V.I.

Photogenesis of  $\pi^0$  mesons on carbon near the threshold. Zhur.  
eksp.i terof.fiz. 37 no.4:1149-1151 0 '59.  
(MIRA 13:5)

1. Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR.  
(Mesons) (Carbon)

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S/120/60/000/02/005/052  
E032/E414

21,2300

AUTHORS: Vasil'kov, R.G., Govorkov, B.B. and Kutsenko, A.V.

TITLE: A Method for Studying the Energy Dependence of  
Photonuclear Reaction Cross-Sections on a Synchrotron 19

PERIODICAL: Pribery i tekhnika eksperimenta, 1960, Nr 2,  
pp 23-26 (USSR)

ABSTRACT: In synchrotron experiments in which various counters or pulse ionization chambers are employed, it is necessary, in order to prevent over-loading, that the accelerator should work under the so-called "stretched" conditions under which the radiation pulse is lengthened ("stretched") to a few microseconds. Under these conditions, the gamma-ray spectrum differs appreciably from the Schiff spectrum and turns out to be altogether indeterminate, since the intensity distribution depends on the degree of "stretching". This leads to serious difficulties in studies of the energy dependence of photonuclear reaction cross-sections. The problem can be tackled in two ways. The first of these is based on varying the instant of time at which the accelerating voltage is cut off, and is subject to all the difficulties mentioned above. The

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Reaction Cross-Sections on a Synchrotron

second approach is based on the use of "stretching" during that part of the acceleration cycle when the magnetic field is almost constant. It is then necessary to vary the magnitude of the maximum magnetic field. The common disadvantage of these methods is that they involve an alteration in the accelerator working conditions during the actual measurements. Moreover, the energy dependence of the cross-sections is deduced from a large number of different experiments carried out under different conditions, and this complicates the interpretation of the results and reduces their accuracy. The method described in the present paper can be used to obtain in a single experiment with "stretched" radiation pulses, the dependence of the integral reaction yield on the maximum energy of the gamma-rays from a synchrotron. It is well-known that the maximum energy of synchrotron radiation is determined by the quantity  $H\rho$ , where  $H$  is the magnetic field in the gap of the magnet at the instant when the accelerated electrons strike the target,

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and  $\rho$  is the radial position of the target. If the electrons are made to strike the target at low magnetic field, and this is continued until the field reaches its maximum value, one can obtain a "stretched" radiation pulse whose energy increases throughout the process. The radiation pulse obtained in this way can be used to study the energy dependence of photonuclear reaction cross-sections. Pulses from the output of the circuit recording a given reaction must then be sorted out by a suitable kicksorter into groups corresponding to different energies. Each of the channels of the pulse height analyser should open when the field reaches the value corresponding to the energy recorded by the given channel. The method can be used provided the intensity distribution in the radiation pulse is strictly uniform. In practice, this condition is not satisfied and the form of the pulse varies during the experiment. In order to exclude these changes it is necessary to have an intensity monitor whose output can be continuously

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Reaction Cross-Sections on a Synchrotron

compared with the counter output with the aid of the commutator. In this way one can determine the output of each channel per unit incident intensity, and the ratio is then independent of the magnitude of the incident intensity or the form of the pulse. Thus, the method is based on the unambiguous relation between the energy of the gamma-rays and the magnetic field in the gap of the synchrotron magnet, and the continuous comparison of the kicksorter and monitor pulses as a function of the magnetic field. The simplest way in which this method can be realized in practice involves the use of time analysers. However, this has two important disadvantages. Firstly, usual time analysers have a uniform time scale and this means that the channels cannot be distributed uniformly along the energy scale, and the energy equivalence is lost since the field in the gap of the synchrotron magnet varies sinusoidally. Secondly, the use of a time scale instead of a magnetic field scale pre-supposes an

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unambiguous relation between them. However, this relation can be upset by instabilities in the working conditions of the accelerator. These and similar disadvantages were excluded in the present work by using a magnetic field scale, i.e. with the aid of commutating elements controlled by pulses which are directly related to given values of the magnetic field in the gap of the accelerator magnet. In the set-up described in the present paper, the disadvantages of the time analysers were, in fact, only partially removed. The particular apparatus employed makes use of a combination of a time scale and a magnetic field scale, namely, the commutating devices are controlled by pulses from the timing circuit, while the position of these pulses is made to depend on the field. A block diagram of the circuit is shown in Fig 1. The apparatus consists of a gamma-ray telescope, a differential monitor and a 10-channel time analyser. The time analyser incorporates a time scale pulse generator, which produces pulses at a variable distance

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E032/E414A Method for Studying the Energy Dependence of Photonuclear  
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from each other, two synchronized electronic commutators and two 10-channel recording devices. The channels are distributed along the energy scale by a special coupling circuit which produces a pulse when the field in the gap of the accelerator magnet passes through a pre-determined value. The apparatus can be used to obtain energy calibrations to an accuracy of  $\pm 2\%$ , the main error being in the measurement of the field. The method requires the monitoring of the intensity in the expanded gamma-ray pulse and this was carried out with the aid of a scintillation counter incorporating a stilbene crystal. The method was checked by measurements on the gamma-ray yield due to the disintegration of  $\pi^0$ -mesons from hydrogen and carbon targets, at  $90^\circ$  to the primary photon beam. The results obtained are in good agreement with those reported by Koester and Mills (Ref 5). Fig 5 shows the dependence of the gamma-ray yield at  $90^\circ$  for hydrogen on the maximum energy in the gamma-ray spectrum. The points

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Reaction Cross-Sections on a Synchrotron

represent the results of present measurements, and the  
crosses the results taken from Ref 5. There are  
5 figures and 5 references, 4 of which are Soviet and  
1 English.

ASSOCIATION: Fizicheskiy institut AN SSSR  
(Physics Institute AS USSR)

SUBMITTED: February 20, 1959

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VASIL'KOV, S., inzh.

Production of lightweight aggregates for concrete in sintering  
units. Stroi.mat. 3 no.7:15-17 J1 '57. (MIRA 10:10)  
(Lightweight concrete)

VASIL'KOV S.G.

VASIL'KOV, S.G. Cand Tech Sci -- (diss) "<sup>obtaining</sup> ~~Extraction~~ of artificial porous fillers from clayey raw material on agglomerated grids."

Mos, 1958. 20 pp. (Acad of Construction and Architecture USSR.

Sci Res Inst of New Building Materials, <sup>Finishing</sup> and Equip<sup>ment</sup> of Buildings. Lab of Slags and Agglomerates). 160 copies.  
(KL, 8-58, 105)



ELINZON, M.P., kand.tekhn.nauk; VASIL'KOV, S.G., kand.tekhn.nauk

Using agglomeration in producing lightweight aggregates. Stroi.  
mat. 5 no.2:11-14 7 '59. (MIRA 12:2)  
(Lightweight concrete)

ELINZON, M., kand.tekhn.nauk; VASIL'KOV, S., kand.tekhn.nauk

Agloporite, a lightweight concrete aggregate. Stroitel' no.7:26  
J1 '59. (MIRA 12:10)  
(Lightweight concrete)

ELINZON, M.P., kand.tekhn.nauk; VASIL'KOV, S.G., kand.tekhn.nauk

Method of testing raw material for the production of agloporite.  
Stroi.mat. 7 no.8:33-35 Ag '61. (MIRA 14:8)  
(Aggregates (Building materials)--Testing)

ELINZON, M.P.; VASIL'KOV, S.G.; POPOV, L.N.; NIKOLAYEVA, N.M., red.  
izd-va; SHERSTNEVA, N.V., tekhn. red.

[Principles of the production of agloporite] Osnovy proizvodstva  
agloporita. Moskva, Gosstroizdat, 1962. 136 p. (MIRA 15:6)  
(Aggregates (Building materials))  
(Lightweight concrete)

GAK, B.N., kand.tekhn. nauk; GERVIDS, I.A., kand. tekhn. nauk; GONCHAR, P.D., inzh.; VASIL'KOV, S.G., kand. tekhn. nauk; YEVNEVICH, A.V., kand. tekhn.nauk; KIPTENKO, A.K., inzh.; LUNDINA, M.G., kand. tekhn.nauk; NAUMCV, M.M., kand. tekhn. nauk; PATRIK, S.A., inzh.; POPOV, L.N., kand. tekhn. nauk; RUGOVOY, M.I., inzh.; SEDOV, V.G., inzh.; SOKOLOV, Yu.B., inzh.; FRANCHUK, K.O., inzh.; KHAYKIN, V.Ya., inzh., nauchnyy red.; CHIBUNOVSKIY, N.G., inzh., nauchnyy red.; NOKHRATYAN, K.A., red. [deceased]; GUZMAN, M.A., red.; GURVICH, E.A., red.; BOROVNEV, N.K., tekhn. red.

[Handbook on the production of structural ceramics]Spravochnik po proizvodstvu stroitel'noi keramiki. Moskva, Gosstroizdat. Vol.3.[Wall and roofing ceramics]Stenovaia i krovel'naia keramika. Pod red. M.M.Naumova i K.A.Nokhratiana. 1962. 699 p. (MIRA 16:1)

(Ceramics) (Building materials industry)

VASIL'KOV, S.G., kand.tekhn.nauk; ELINZON, M.P., kand.tekhn.nauk

The problem of the method of testing and choosing raw material  
for the production of agloporite. Sbor.trud.VNIINSM no.6:5-17  
'62. (MIRA 15:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh  
stroitel'nykh materialov Akademii stroitel'stva i arkhitektury  
SSSR.

(Aggregates (Building materials))

ELINZON, M.P., kand.tekhn.nauk; VASIL'KOV, S.G., kand.tekhn.nauk;  
SHTEYN, Ya.S., kand.tekhn.nauk

Industrial mastering of the production of agloporite in  
Electrostal'. Sbor.trud.VNIINSM no.6:110-135 '62. (MIRA 15:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh  
stroitel'nykh materialov Akademii stroitel'stva i arkhitektury  
SSSR.

(Electrostal'—Aggregates (Building materials))  
(Lightweight concrete)

VASIL'KOV, S.G., kand. tekhn. nauk

Producing agloporite from boiler slags. Stroi. nat. 11 no.1:  
31-32 Ja '65. (MIRA 1836)

1. Vsesoyuznyy gosudarstvennyy nauchno-issledovatel'skiy institut  
stroitel'nykh materialov i konstruktsiy.



BOGUSLAVSKIY, Ya.M.; VASILOV, S.I., dots.

[Bibliographic handbook on luminescent analysis in medicine  
and biology] Bibliograficheski spravochnik literatury po  
liuminescentnomu analizu v meditsine i biologii; s 1947 g.  
po iyun' 1961 g. Chita, Chitinski gos. med. in-t, 1961. 66 p.  
(MIRA 15:10)

(Bibliography—Luminescence)

VASILOV, S.I.; LOBOVIKOV, G.K.; PUDOV, V.F.

Lamp of shortwave ultraviolet rays fed from a battery. Top.  
kur. fizioter. i lech. fiz. kul't. 28 no.3:264. My-Je '63.

(MIRA 17:5)

1. Iz kafedry fiziki (zav.-dotsent S.I. Vasilov) Ghitlinskogo  
meditsinskogo instituta (dir.-dotsent Yu.D. Ryzhkov).

VASIL'KOV, V., inzh.

Drum-type washing machine. Avt. transp. 43 no.10;27-29 0 '65.  
(MIRA 18:10)

GOVOROV, Nikolay Alekseyevich; PONOMAREV, N.A., kandidat tekhnicheskikh nauk, redaktor; GEL'MAN, D.Ya., redaktor; VASIL'KOV, V.A., glavnyy redaktor izdatel'stva; GOLUBKOVA, L.A., tekhnicheskii redaktor

[Mechanization of labor-consuming processes of sacking in mills and groats plants] Mekhanizatsiya trudoemkikh rabot v vyboinykh otde-  
niakh mel'nits i kruposovodov. Pod red. N.A.Ponomareva. Moskva,  
Izd-vo tekhn. i ekon. lit-ry po voprosam mukomol'no-krupianoj,  
kombikormovoi promyshl. i elevatorno-skladskogo khoziaistva Khlebo-  
izdat, 1956. 91 p. (MLRA 10:2)

(Flour mills--Equipment and supplies)

VASIL'KOV, V. G.

"Improve Methods of Operating Radiol Station Equipment," Vest. Svyazi, No.6, pp 24-26, 1953.

Translation M-630, 13 Jul 55

VASIL'KOV, V.G.

Important date in the history of Soviet radio engineering. Vest.  
svyazi 18 no.6:29-30 Je '58. (MIRA 11:6)

1. Nachal'nik radiotsentra 500-kilovatnoy radiostantsii imeni Komin-  
terna.

(Radio stations)

111-58-6-20/25

AUTHOR: Vasil'kov, V.G., Chief of the Radio Center

TITLE: An Important Date in the History of Soviet Radio Engineering (Znamenatel'naya data v istorii sovetskoy radio-tekhniki) On the 25th Anniversary of the Putting Into Operation of the 500 kw Radio Station imeni Komintern (K 25-letiyu so dnya puska 500-kilovattnoy radiostantsii imeni Kominterna)

PERIODICAL: Vestnik Svyazi, Nr 6, 1958, pp 29-30 (USSR)

ABSTRACT: The above anniversary took place on May 1st, 1958. The broadcasting station imeni Komintern was constructed during the first 5-year plan according to the project of the following group of Soviet engineers: G.A. Zeytlenok; V.D. Selivokhin; Z.I. Model'; N.I. Oganov; S.I. Itin; V.A. Sharshavin; and supervised by the A.L. Mints, who is now Corresponding Member of Akademiya nauk SSSR (The USSR Academy of Sciences). All these engineers were rewarded with orders and diplomas by the "TsIK SSSR". When the feedback coupling system was introduced into this station, the work was under the supervision of Engineer V.N. Aksencv. New high-stability oscillators were introduced and the power supply

Card 1/2

111-56-6-20, 25

An Important Date in the History of Soviet Radio Engineering. On the 25th Anniversary of the Putting Into Operation of the 500 kw Radio Station imeni Komintern

equipment partly replaced. It is now planned to adapt modern power tubes with activated cathodes, in order to utilize a new modulation circuit highly increase the commercial efficiency factor and improve the quality characteristics until they meet modern requirements. It is also planned to automate the system of switching over to the reserve units, the starting and maintaining of operation conditions.

Card 2/2

1. Communications - USSR
2. Radio engineering;



VASIL'KOV, V.P.

Method of preparation of plastmass from AKR-7 in repair of defects of the exterior part of the nose. Vest. otolinar., Moskva 15 no.3:72-73 May-June 1953. (GML 25:1)

1. Of the Clinic for Diseases of the Ear, Throat, and Nose imeni Prof. V. I. Voyachek, Leningrad.

VASIL'KOV, V.P.

Universal dismountable cast for making V-type laryngostomic rubber prostheses-dilators. Vest. oto-rin. 16 no.4:77-78 J1-Ag '54. (MLRA 7:8)

1. Iz oto-laringologicheskoy kliniki imeni V.I.Voyacheka (Leningrad)  
(LARYNX, stenosis,  
\*caustic, casts for prep. of V-type of resin dilators)  
(OTORHINOLARYNGOLOGY, apparatus and instruments,  
\*casts for prep. of V-type of resin dilators of larynx  
in stenosis)

29622

S/142/61/004/003/003/016

E192/E382

9.4220 (1052)

AUTHOR: Vasil'kov, V.Ye.

TITLE: Use of reflex klystrons for the detection and measurement of power

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, v. 4, no. 3, 1961, pp. 262 - 269

TEXT: The use of reflex klystrons as high-frequency detectors has been known for a long time (Ref. 1 - Grekhova, M.T., Averkov, S.I., Grigorash, D.I. and Anikin, V.I. - Izv. AN SSSR, 1947, 11, no. 2, 183) but, in recent years, this method of detection has become important (Ref. 2 - S.A. Kornilov, O.N. Kazbekova, Radiotekhnika i elektronika, 1959, 4, no. 3, 475; Ref. 3 - Kostienko, A.I., Devyatkov, M.N. and Lebed', A.A. - Radiotekhnika i elektronika, 1959, 4, no. 3, 482; Ref. 4 - Dr. Koryn Ishii - Electronic Industries, 1959, November, No. 11, 77). In the following, attention is paid to the possibility of employing the klystrons for measuring the high-frequency power by employing their detection characteristics. In order to employ a klystron as a detector,

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E192/E382

it is necessary to determine the DC component of the reflector current or voltage across the load as a function of the high-frequency power applied to the resonator. For the purpose of calculating the characteristics, the following assumptions are made: 1) the initial thermal velocities of the electrons are zero; 2) the electrons in the bunching space move along straight lines, perpendicularly to the reflector surface; 3) the influence of the space charge is neglected and 4) the resonator is tuned to the frequency of the received signal. Under the above conditions the expression for the maximum distance from the resonator which the velocity-modulated electrons can traverse is given by (Ref. 5 - S.D. Gvozdover - Theory of electronic devices for ultrahigh frequencies, GITTL 1956)

$$x_m = d_0 \left[ 1 + M \frac{U_m}{U_0} \sin \left( \omega t_0 - \frac{\varphi_0}{2} \right) \right] \quad (1)$$

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E192/E382

which is valid for  $U_m \ll U_0$ , where  $U_m$  is the amplitude of the high-frequency voltage in the interaction space,  $U_0$  is the accelerating potential applied to the resonator,  $d_0$  is the maximum distance which can be covered by the electrons whose velocity is not changed during transit through the gap,  $\omega$  is the power-signal frequency,  $t_0$  is the transit time of the electrons and  $\varphi$  is the transit angle of the electrons in the interaction space. The DC component of the collector current can be expressed by:

$$\cos \frac{i}{i_0} \pi = - \frac{U}{MU_m} \quad (2)$$

where  $U$  is the voltage of the reflector with respect to the cathode and  $i_0$  is the DC component of the resonator current.

If a resistance  $R$  is connected in series with a reflector,

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Use of reflex klystrons ....

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E192/E382

the reflector current can be expressed by:

$$\frac{1}{i_0} U_H - U_{\text{R}} \cos \frac{1}{i_0} \pi = U \quad (3)$$

where  $U_{\text{R}} = MU_m$ ,  $U_H = i_0 R$ . By using the above equations a graph was constructed (Fig. 1) which shows the dependence of the relative magnitude of the reflector current  $i/i_0$  as a function of  $U_{\text{R}}$  for the case of  $U_H = 0$  and  $U_H = 1.5$ . The upper curves of Fig. 1 corresponds to a positive reflector voltage, while the lower curves illustrate the situation in the case of negative reflector potentials. The direct-voltage component across the reflector load can be determined from:

$$U_R - U_{\text{R}} \cos \frac{U_R}{U_H} \pi = U \quad (4).$$

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E192/E582

By using this equation it is possible to determine the dependence of the pulse voltage across the reflector load on the reflector voltage when a pulse signal is applied to the klystron. It is also possible to take into account the initial thermal velocities of the electrons. In this case, the overall reflector current is given by:

$$i = i_m + i_0 \frac{\theta}{2\pi} = i_0 \exp\left(\frac{eU'}{kT}\right) \cdot \frac{1}{\pi} \int_{\theta/2}^{\pi} \exp\left(\frac{eU_3}{kT} \cos \omega t_0\right) d\omega t_0 + i_0 \frac{\theta}{2\pi} \quad (5)$$

where  $U' = U - V_m$ , where  $V_m$  is the minimum potential of the cathode,  $k$  is the Boltzmann constant and  $T$  is the absolute temperature of the cathode. The detection characteristics of the klystrons were investigated experimentally. Some of these are illustrated in Fig. 4, which gives the dependence of the reflector current on the reflector voltage; Curves 1, 2, 3 and 4

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correspond to high-frequency powers of 0.4, 0.8, 1.6 and 3.2 mW. In the measurement of power, it is possible to use the following two methods: the magnitude of the reflector current or voltage is measured directly, the reflector voltage being kept constant; the reflector current is kept constant by adjusting the negative reflector potential. The calibration curves for the first method of measurement are shown in Fig. 6, where the axis of the ordinates shows the magnitude of the pulse voltage and the axis of the abscissae gives the corresponding high-frequency power; Curve 1 of Fig. 6 was taken for the optimum reflector voltage, while Curve 2 was taken for  $U = -5$  V. From the above investigation, it is concluded that a klystron can be used successfully for the measurement of pulse powers and that the error of measurement is of the same order as that encountered in instruments with crystal diodes. However, the klystron method has the advantage of greater stability than the diode method. It is also less sensitive to overloads.

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Use of reflex klystrons ....

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S/142/61/004/003/003/016  
E192/E382

There are 7 figures and 5 references: 4 Soviet-bloc and  
1 non-Soviet-bloc. The English-language reference is quoted  
in the text.

ASSOCIATION: Kafedra spetsfiziki Leningradskogo elektro-  
tekhnicheskogo instituta im. V.I. Ul'yanova  
(Lenina) (Department of Specialised Physics  
of Leningrad Electrotechnical Institute im.  
V.I. Ul'yanov (Lenin)

SUBMITTED: July 11, 1960

X

Card 7187

ACCESSION NO. 100-100000

100-100000-1001

AUTHOR: MATTHEW, Y. TITLE: A. S. Peretti, V. V.

ABSTRACT: The author discusses the role of the CIA in the

the history of the CIA and the role of the CIA in the

the history of the CIA

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VASIL'KOV, E. M.

USSR/ Engineering - Crankshaft production

Card : 1/1

Authors : Samoylovich, G. S., Engineer; Vasil'kov, E. M., Engineer

Title : On the effect of the intrinsic weight of a multiple-bearing crankshaft in the determination of the magnitude of pulsation of the shaft journal and the plane of the residual sagging of its axis

Periodical : Vest. Mash., 34, Ed. 6, 96 - 99, June 1954

Abstract : The effect of crankshaft weight (internal combustion engines) on journal vibration and the plane of residual sagging of its axis is dealt with. Methods were developed for the exact computation of this effect. Graphs; drawings.

Institution : ...

Submitted : ...

SAMOYLOVICH, G.S., inzhener; VASIL'KOV, Ye.M., inzhener.

Straightening multiple-bearing crankshafts by surface cold-hardening. Vest.mash. 35: no.10:25-29 0 '55. (MLRA 9:1)

(Crank and crankshafts) (Steel--Hardening)

CHUKALOV, N.N., prof., doktor med.nauk; VASIL'KOVA, A.A., dotsent, kand.med.  
nauk

Extending indications for cesarean section. Trudy Izhev.gos.med.inst.  
13:226-229 '51. (MIRA 13:2)

1. Iz kafedry akusherstva i ginekologii Izhevskogo meditsinskogo  
instituta. Zaveduyushchiy kafedroy - prof. N.N. Chukalov.  
(CESAREAN SECTION)

CHUKALOV, N.N., dotsent, prof.med.nauk; VASIL'KOVA, A.A., dotsent, kand.med.  
nauk

Protection of the perineum in the management of normal labor. Trudy  
Izhev..gos.med.inst. 13:230-235 '51. (MIRA 13:2)

1. Iz kafedry akusherstva i ginekologii Izhevskogo meditsinskogo  
instituta. Zaveduyushchiy kafedroy - prof. N.N. Chukalov.  
(LABOR (OBSTETRICS)) (PERINEUM)

VASIL'KOVA, A. K.

"Monillial Scald (*Monilia laxa*) of Apricots and Control Measures,"  
Sad i Ogorod, no. 9, 1947, pp. 32-34. 80 Sal3

So: SIRA S1-90-53, 15 Dec 1953



VASIL'KOVA, A. K.

"Bacteriosis of Cabbage Seed Plants in Donbass," Sad i Ogorod, no. 8,  
1948, pp.62-63. 80 S-13

So: SIRA-S1-90-53, 15 Dec. 1953

COUNTRY : USSR  
 CATEGORY : PLANT DISEASES, Diseases of Cultivated Plants.

ABS. JOUR : Zashchita rasteniy, No. 2, 1958, No. 6619

AUTHOR : Vasil'kova, V.K.  
 INST. : Melitopol Horticultural Station  
 TITLE : Bacterial Canker in Stone Fruit Trees

ORIG. PUBL : Zashchita rasteniy, No. 2, 1958, No. 6619

ABSTRACT : Premature death of stone fruit tree species is widespread in the south of the Ukraine, incurring a large annual loss. Research conducted for three years at Melitopol Horticultural Station has shown that the disease caused by *Pseudomonas syringae* van Hall. The trees most susceptible to the canker are apricot, followed by Mazzard cherry, plum, sour cherry and, finally, the peach. There are also varietal differences. All of the

CHAD: 1/5

SUBJECT :  
SUBJECT : PLANT DISEASES.

ABSTRACT : *Phytophthora*, No. 2, 198, No. 9619

Author :  
INVT :  
TITLE :

ORIG. PUB.:

ABSTRACT : plant organs are attacked, root infection being the most dangerous. The bacteria enter the bark through buds which blacken and die, as well as through wounds. Depressed sores are formed on the bark where the bacteria have penetrated, gum is not always exuded; the bark turns brown, emits an acrid odor, dries out and dies. The leaves wither and the branches desiccate. Characteristic of chronic forms of the disease are cankerous

CARD : 2/ 5

COUNTRY :  
CATEGORY : PLANT COLLECTOR

ABS. 5077: *Am. Entom. Soc. Trans.*, **2**, 1959, no. 6610

AUTHOR :  
 INST. :  
 TITLE :

ORIG. PU2.:

BS11.OT : formations on the bark, leaf curl and discoloration, necrosis along the edge of the leaf blade, leaf perforation (in sour cherry and plum), retardation in development, leaf stunting, chlorosis and dying of twigs. The bacteria penetrating the vessels destroy these and form characteristic holes or "wind-rows" in the young wood of the branches on trunk. Experiments with artificial contamination have shown that if the bacteria

CARD: 3/5

SOURCE : Plant Disease

ABSTRACT : Les 3. Les-Myiologia, No. 2, 1979, No. 6610

AUTHOR :  
INST. :  
TITLE :

ORIG. PUB.:

ABSTRACT : penetrate the plant which is in the resting stage (in early spring or fall), their rapid multiplication takes over. During the period of active tree growth the bacteria develop slowly and the chronic form of the disease occurs. This explains the high percentage of transmissions of the disease in trimming which should be deferred to summer. Systematic cleaning of the trees of seats of infection, rubbing carbolineum into wounds, the

CARD : 4/5

COUNTRY :  
CATEGORY : PLANT DISEASES.

ABS. JOUR : Ref. Jour. - Entomol. Soc. Ind. 2, 1959, No. 6014.

AUTHOR :  
INST. :  
TITLE :

ORIG. PUB.:

ABSTRACT : disinfection of instruments in formalin solution, and keeping the orchard fallow soil in the condition of a black fallow are recommended. When the disease is discovered in the nursery, all infected saplings should be removed, the soil disinfected with calcium hypochlorite (200 g/m<sup>2</sup>) and redug.  
--G.A. Dzygachev

UAD: 5/5

VASIL'KOVA, A.K., starshiy nauchnyy sotrudnik

Chemotherapeutic method for controlling the bacterial blight  
of stone fruits. Zashch. rast. ot vred. i bol. 6 no.8:57  
Ag '61. (MIRA 15:12)

1. Melitopol'skaya opyt'naya stantsiya sadovodstva.  
(Stone fruit—Diseases and pests)  
(Bactericides)

SAVKOVSKIY, P.P., nauchn. sotr.; ISAYEVA, Ye.V., nauchn. sotr.; OLIFER, A.V., nauchn. sotr.; SHCHERBAKOV, V.V., nauchn. sotr.; POVZUN, I.D., nauchn. sotr.; MASLO, Ye.M., nauchn. sotr.; KRYLOVA, A.S., nauchn. sotr.; MATVIYEVSKIY, A.S., nauchn. sotr.; VASIL'KOVA, A.K., nauchn. sotr.; VOVCHENKO, D.P., nauchn. sotr.; BOGDAN, L.I., nauchn. sotr.; GROTE, G.M., nauchn. sotr.; SKUTSKAYA, N.P., red.; DAKHNO, Yu.B., tekhn. red.

[Pests and diseases of fruit and berry crops] Vrediteli i bo-  
lezni plodovo-iagodnykh kul'tur; spravochnik. Kiev, Izd-vo  
AN Ukr.SSR, 1962. 275 p. (MIRA 16:7)

(Fruit—Diseases and pests)



SAVKOVSKIY, P.P., nauchn. sotr.; ISAYEVA, Ye.V., nauchn. sotr.;  
OLIFER, A.V., nauchn. sotr.; SHCHERBAKOV, V.V., nauchn.  
sotr.; FOVZUN, I.D., nauchn. sotr.; MASLO, Ye.M., nauchn.  
sotr.; KRYLOVA, A.S., nauchn. sotr.; MATVIYEVSKIY, A.S.,  
nauchn. sotr.; VASILKOVA, A.K., nauchn. sotr.; VOVCHENKO,  
D.P., nauchn. sotr.; BOGDAN, L.I., nauchn. sotr.; GROTE  
M.G., nauchn. sotr.; CHEPUR, N.D., red.

[Pests and diseases of fruit and berry plants; a manual]  
Vrediteli i bolezni plodovo-iagodnykh kul'tur; spravoch-  
nik. Kiev, Naukova dumka, 1965. 287 p. (MIRA 18:9)

VASILKOVA D.A.

HILLE, Einar, 1894- ; VASIL'KOVA, D.A. [translator].

[Functional analysis and semi-groups] Funktsional'nyi analiz i  
polugruppy. Moskva, Izd. inostrannoi lit-ry, 1951. 635 p. (MLA 7:11)  
(Topology) (Functional analysis)

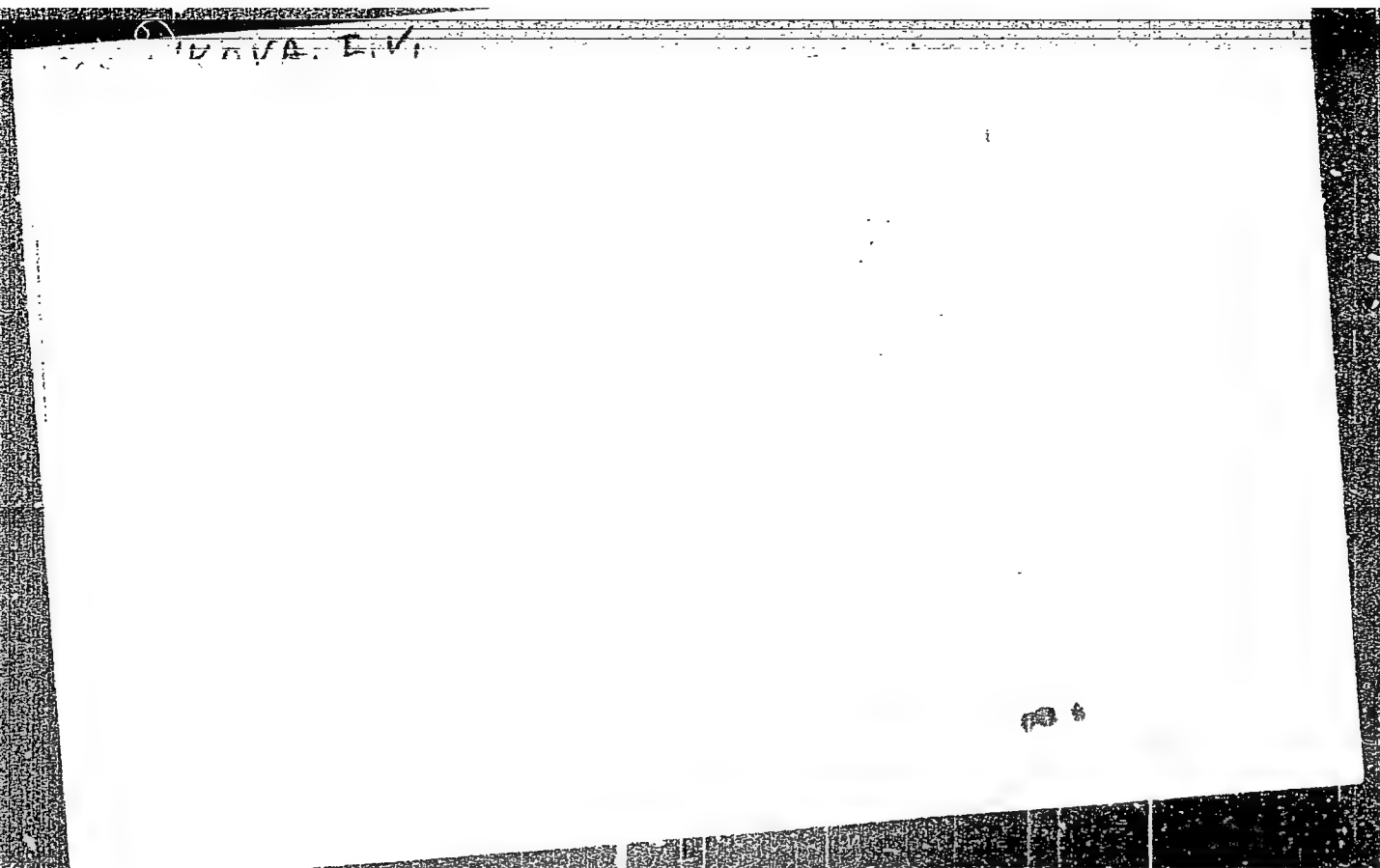
SHCHUKAREV, S.A.; VASIL'KOVA, I.V.

Phenomenon of secondary periodicity as exemplified by magnesium  
compounds with the elements of the main subgroup of the fourth  
group of D.I. Mendeleev's periodic system. Vest. LGU 8 no.2:  
115-120 F '53. (MIRA 12:7)

(Periodic law) (Magnesium compounds)

"APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001858810017-2

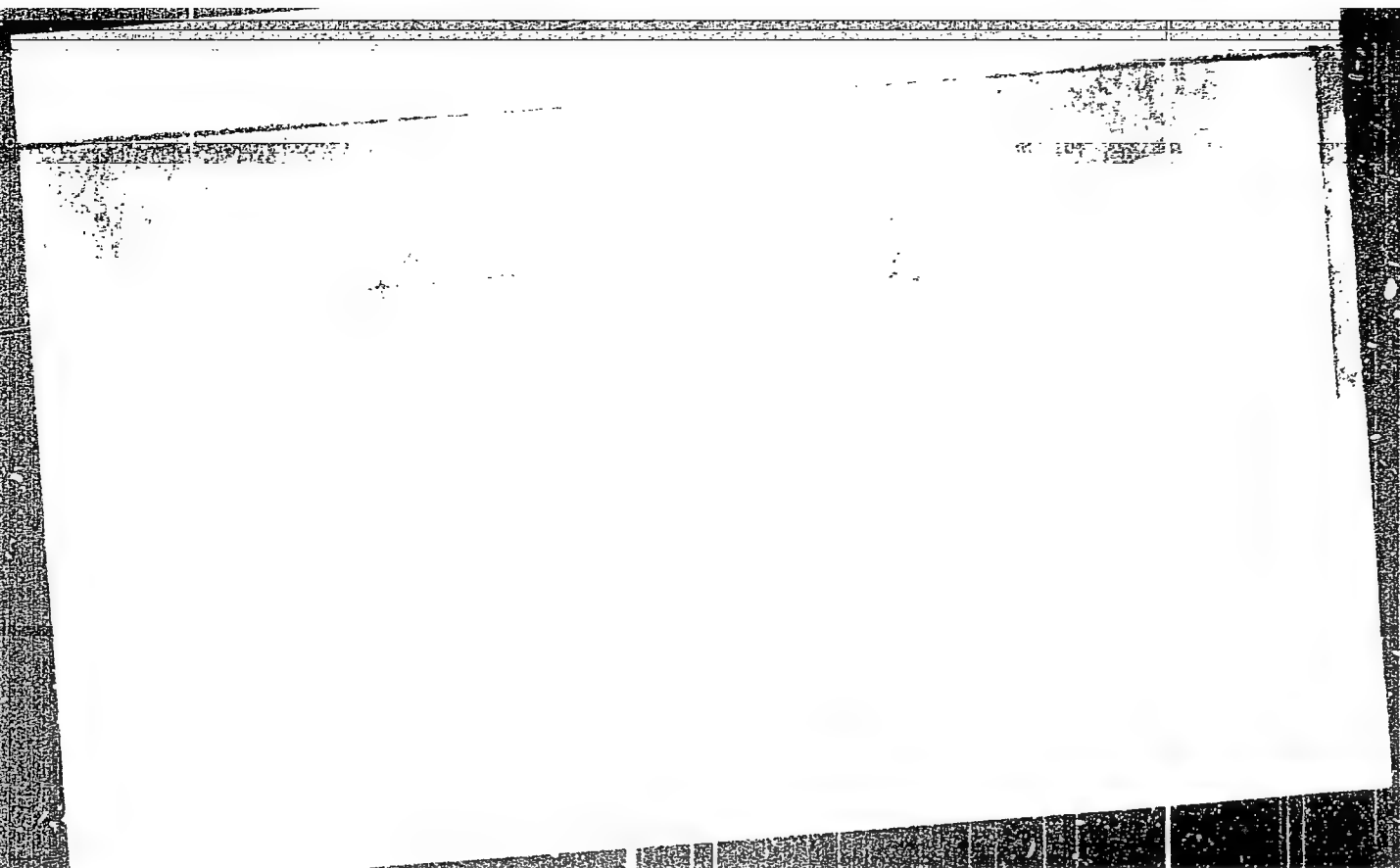


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**CIA-RDP86-00513R001858810017-2"**

VASIL'KOVA, I.V.

USSR/Thermodynamics. Thermochemistry. Equilibria. Physico-Chemical B-8  
Analysis. Phase Transitions

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26101

Author : S.A. Shchukarev, I.V. Vasil'kova, B.N. Sharupin  
Title : To the Study of Molybdenum Halide. I. Evaporation and Dis-  
sociation Pressure of Molybdenum Pentachloride.

Orig Pub : Zh. obshch. khimii, 1956, 26, No 8, 2093-2097

Abstract : The pressure of the saturated vapor and of dissociation of  $\text{MoCl}_5$  (I) was determined by the flow method in a flow of  $\text{N}_2$  and in the range from 70 to 160°. The following was found from the obtained data:  $\log p \text{ I} = 10.623 - 3991/T$ ;  $\Delta H^\circ = 18.3$  kcal per mol,  $\Delta S^\circ = 35.6$  entr. units,  $\Delta F^\circ = 7.7$  kcal per mol. The same for the reaction  $2\text{MoCl}_5 (\text{solid}) = 2\text{MoCl}_4 (\text{solid}) + \text{Cl}_2$  were:  $\log K_p = 14.143 - 5412/T$   $\Delta H^\circ = 24.5$  kcal per mol,  $\Delta S^\circ = 49.2$  entr. units,  $\Delta F^\circ = 9.9$  kcal per mol; and for the reaction  $2 \text{MoCl}_5 (\text{gas}) = 2\text{MoCl}_4 (\text{solid}) + \text{Cl}_2$ :  $\log K_p = -6.753 + 2448/T$ ;  $\Delta H^\circ = -12.3$  kcal per mol;  $\Delta S^\circ = 50.2$  entr. units;  $\Delta F^\circ = 2.6$  kcal per mol. The heat of formation of I  $\Delta H^\circ (\text{form.}) = -78.5$  kcal per mol.

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SOV/78-3-12-8/36

AUTHORS:

Shchukarev, S. A., Vasil'kova, I. V., Novikov, G. I.

TITLE:

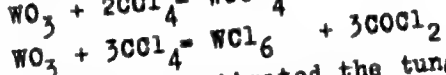
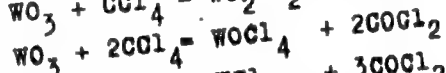
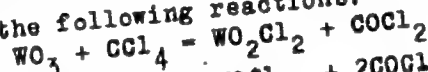
III. The Determination of the Heat of Formation of Chlorine Derivatives of Hexavalent Tungsten (III. Opredeleeniye teplot obrazovaniya khlorproizvodnykh shestivalentnogo vol'frama)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 12, pp 2642-2646 (USSR)

ABSTRACT:

The heat of solution of  $WOCl_4$ ,  $WO_2Cl_2$ , and  $WCl_6$  in 12% NaOH and at 25°C was determined. The production of the initial materials was carried out by chlorinating  $WO_3$  with  $CCl_4$  according to the following reactions:



In all the compounds investigated the tungsten is hexavalent. The oxychlorides  $WOCl_4$  and  $WO_2Cl_2$  dissolve more quickly than  $WCl_6$  in the 12% NaOH solution. The following values were found

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SOV/78-3-12-8/36

III. The Determination of the Heat of Formation of Chlorine Derivatives of Hexavalent Tungsten

for the respective heats of formation of  $WCl_6$ ,  $WOCl_4$ , and  $WO_2Cl_2$ : -163.1, - 177.5 and -199 kcal/mole. The heats of formation of the chlorides and oxides of the elements of the fifth group in the periodic system were compared and for chromium, molybdenum, tungsten, and uranium almost equal values were found for the  $\Delta H_{\text{formation}}$  for  $MeO_2Cl_2$  and corresponding oxides  $MeO_3$ . There are 1 figure, 4 tables, and 12 references, 6 of which are Soviet.

SUBMITTED: August 5, 1957

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SOV/78-3-12-9/36

AUTHORS: Shehukarev, S. A., Vasil'kova, I. V., Martynova, N. S.,  
Mal'tsev, Yu. G.

TITLE: Concerning the Heat of Formation of Uranyl Chloride and Mono-  
Oxyuranyl Trichloride (O teplete obrazovaniya uranilkhlorida i  
monooksitrikhlorida urana)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 12,  
pp 2647-2650 (USSR)

ABSTRACT: The heat of solution of  $UCl_4$ ,  $UO_2Cl_2$ , and  $UOCl_3$  in a 0.5%  
 $FeCl_3$  and 2% HCl solution was determined. The synthesis of the  
starting materials is described. The results for the heats of  
dissolution are given in table 2:  
 $\Delta H$  for  $FeCl_3$  in 2% HCl =  $-30.75 \pm 0.27$  kcal/mole  
 $\Delta H$  for  $UO_2Cl_2$  in 0.5%  $FeCl_3$  in 2% HCl =  $-25.44 \pm 0.07$  kcal/mole  
 $\Delta H$  for  $UCl_4$  in 0.5%  $FeCl_3$  in 2% HCl =  $-45.50 \pm 0.10$  kcal/mole  
 $\Delta H$  for  $UOCl_3$  in 0.5%  $FeCl_3$  in 2% HCl =  $-28.55 \pm 0.13$  kcal/mole.  
 The standard heat of formation for  $UO_2Cl_2$  and  $UOCl_3$  was

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SOV/78-3-12-9/36  
Concerning the Heat of Formation of Uranyl Chloride and Mono-Oxyuranyl Tri-chloride

calculated:  $\Delta H_{\text{formation}} \text{UO}_2\text{Cl}_2 = -301.9 \text{ kcal/mole}$  and  
 $\Delta H_{\text{formation}} \text{UOCl}_3 = -283.4 \text{ kcal/mole}.$

There are 2 tables and 9 references, 4 of which are Soviet.

SUBMITTED: September 5, 1957

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SOV/78-3-12-10/36

AUTHORS: Shchukarev, S. A., Vasil'kova, I. V., Drozdova, V. M.

TITLE: The Heat of Formation of Uranyl Bromide and Mono-Oxy  
Uranyl Tribromide (Teplota obrazovaniya uranilbromida i  
monooksitribromida urana)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 12,  
pp 2651-2653 (USSR)

ABSTRACT: The heat of solution was determined for  $\text{UO}_2\text{Br}_2$  and  $\text{UOBr}_3$   
in a 0.5%  $\text{FeCl}_3$  and 2%  $\text{HCl}$  solution. The synthesis of the  
 $\text{UO}_2\text{Br}_2$  and  $\text{UOBr}_3$  is described. The  $\text{UO}_2\text{Br}_2$  was produced by the  
oxidation of  $\text{UBr}_4$  in an oxygen stream at 160-165°, and the  $\text{UOBr}_3$   
was produced by reacting water-free uranium trioxide with  $\text{CBr}_4$ .  
The heat of formation for  $\text{UO}_2\text{Br}_2$  and  $\text{UOBr}_3$  is determined by  
taking the difference between the heats of dissolution of the  
compounds under investigation. At 25° the heat of formation  
of uranyl bromide  $\Delta H = -31.23 \pm 0.20$  kcal/mole, of  $\text{UOBr}_3$   
 $\Delta H = -45.42 \pm 0.21$  kcal/mole. For the heat of formation at 298°K

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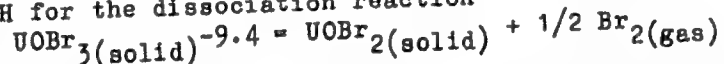
SOV/78-3-12-10/36

The Heat of Formation of Uranyl Bromide and Mono-Oxy Uranyl Tribromide

for mono-oxy uranyl tribromide  $\Delta H$  was found to be -233.8 kcal/mole and for  $UOBr_2$   $\Delta H$  was found to be 254.2 kcal/mole.

From the heats of formation so obtained for  $UOBr_3$  and  $UOBr_2$

the  $\Delta H$  for the dissociation reaction



was calculated.

There are 1 table and 8 references, 3 of which are Soviet.

SUBMITTED: September 5, 1957

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5(2), 5(3)

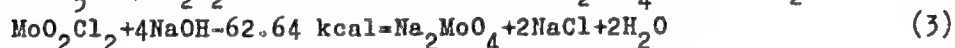
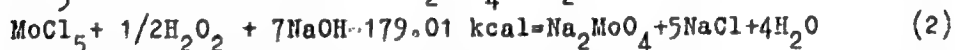
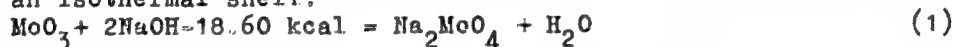
SOV/54-59-1-9/25

AUTHORS: Shchukarev, S. A., Vasil'kova, I. V., Sharupin, B. N.

TITLE: II. On the Investigation of Molybdenum Haloids. Determination of the Formation Enthalpy of Some Chlorine Derivatives of Penta- valent and Hexavalent Molybdenum (II. K issledovaniyu galidov molibdena. Opredeleniye ental'pii obrazovaniya nekotorykh proizvodnykh pyati- i shestivalentnogo molibdena)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii. 1959, Nr 1, pp 73-77 (USSR)

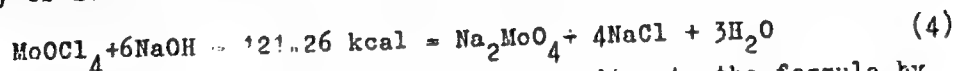
ABSTRACT: In this paper the authors determined the formation enthalpy of  $\text{MoCl}_5$ ,  $\text{MoO}_2\text{Cl}_2$  and  $\text{MoOCl}_4$  according to the difference in enthalpy of the reactions of these compounds and  $\text{MoO}_3$  with 0.718 n NaOH. The reaction enthalpy of the following four reactions was determined by means of a calorimeter with an isothermal shell:



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SOV/54 59-1 9/25

II. On the Investigation of Molybdenum Haloids Determination of the Formation Enthalpy of Some Chlorine Derivatives of Pentavalent and Hexavalent Molybdenum



The data obtained were evaluated according to the formula by Renault (Ren'o) Pfaundler-Usov. The calculation of the formation enthalpy presupposes that all solutions synthesized from these four reactions contain the same products. This was checked by determining the optical density of the solutions. The results of this investigation indicated a uniform final product of all four reactions. The course of calculating the formation enthalpy of  $\text{MoCl}_3$  is given. Table 3 contains the values of formation enthalpy of the individual compounds under investigation. The following values hold for  $\text{MoCl}_5$ ,  $\text{MoOCl}_4$  and  $\text{MoO}_2\text{Cl}_2$ : -126.56, -153.48 and -173.08 kcal/moles. Further, the authors determined the reaction enthalpy of  $\text{MoCl}_5$ ,  $\text{MoOCl}_4$  and  $\text{MoO}_2\text{Cl}_2$  with solutions containing 0.02 n  $\text{KMnO}_4$  and 2 n  $\text{H}_2\text{SO}_4$ . The calculation was made at 25°. All values obtained for the formation enthalpy are much larger than those computed by Brewer on the basis of the value  $\Delta H_{\text{MoCl}_5}$  which was found by Van Liempt

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SOV/54-59-1-9/25

II. On the Investigation of Molybdenum Haloids. Determination of the Formation Enthalpy of Some Chlorine Derivatives of Pentavalent and Hexavalent Molybdenum

in 1931. The value of  $\Delta H_{\text{MoO}_3}$  which was found in this paper and forms the basis of the respective calculations, amounts to -18.60 kcal/moles. There are 2 figures, 3 tables, and 11 references, 3 of which are Soviet.

SUBMITTED: March 24, 1958

Card 3/3

5(4)

AUTHORS:

SOV/54-59-2-10/24  
Shchukarev, S. A., ~~Vasilikova, I. V.~~, Sharupin, B. N.

TITLE:

On the Investigation of Molybdenum Halides. Synthesis and Determination of Formation Enthalpy of Molybdenum Tetrachloride (K issledovaniyu galidov molibdena. Sintez i opredeleniye ental'pii obrazovaniya tetrakhlorida molibdena)

PERIODICAL:

Vestnik Leningradskego universiteta. Seriya fiziki i khimii, 1959, Nr 2, pp 72-77 (USSR)

ABSTRACT:

In this paper, which represents part of the dissertation by B. N. Sharupin, a checking of the value of the formation enthalpy of the molybdenum tetrachloride was carried out. In a previous paper (Ref 4), the dissociation enthalpy of the  $\text{MoCl}_5$  had been computed by use of tensimetical data from the reaction:  $[\text{MoCl}_5] + 12.2 \text{ kcal} = [\text{MoCl}_4] + 1/2 \text{ Cl}_2$  (1). The formation enthalpy  $\Delta H$  of the  $\text{MoCl}_5$  was assumed with  $-90.8 \text{ kcal/mol}$  according to references 5,1,2. The value obtained for  $\Delta H$  of the  $\text{MoCl}_4$  agreed with the corresponding values of the mentioned papers. A new measurement by the authors (Ref 6), how-

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SOV/54-59-2-10/24

On the Investigation of Molybdenum Halides. Synthesis and Determination of  
Formation Enthalpy of Molybdenum Tetrachloride

ever, yielded the value: -126 kcal/mol for the  $\Delta H_{\text{form}}$  of the  $\text{MoCl}_5$ . In order to discover the causes of this discrepancy, the formation enthalpy was computed from the data of a method principally different from reference 6, and checked in this way.  $\Delta H$  was determined by the difference of the reaction enthalpies of  $\text{MoCl}_5$  and  $\text{MoCl}_4$  with solutions containing 0.5%  $\text{FeCl}_3$  and 2%  $\text{HCl}$ . The investigations were carried out at 25°C. To investigate a possible disproportionation of  $\text{MoCl}_4$  in the presence of trivalent iron in  $\text{MoCl}_3$  and  $\text{MoCl}_5$ , and a further oxidation of the ion  $\text{Mo}^{3+}$  to  $\text{Mo}^{5+}$ , the optic density of the solution obtained in the calorimeter was determined (Fig 1). This showed that in this solution only the pentavalent molybdenion was present. (For the synthesis of  $\text{MoCl}_5$ , see reference 4.) The synthesis of  $\text{MoCl}_4$  was carried out on the plant represented in figure 2. The best conditions for the synthesis

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SOV/54-59-2-10/24

On the Investigation of Molybdenum Halides. Synthesis and Determination of Formation Enthalpy of Molybdenum Tetrachloride

proceeding according to the reaction:  $\text{Mo} + \text{O}_2 + 2\text{CCl}_4 = \text{MoCl}_4 + 2\text{COCl}_2$  are: temperature of furnace  $300^\circ$ , temperature of the saturator  $25^\circ$ , and velocity of nitrogen 5-6 l/hour. 5-6 g  $\text{MoCl}_4$  were obtained in this way in 8 hours. The determination of the enthalpy is described in the papers (Refs 6,12). The values of the reaction enthalpies of  $\text{MoCl}_4$  and  $\text{MoCl}_5$  with the mentioned solution are compiled in tables 1,2. The computation of the formation enthalpy of  $\text{MoCl}_4$  was carried out on the basis of the following reactions:  $\text{MoCl}_5 + \text{H}_2\text{O} (0.5\% \text{FeCl}_3, 2\% \text{HCl}) = \text{MoOCl}_3 + 2\text{HCl}$ ;  $\text{MoCl}_4 + \text{FeCl}_3 + \text{H}_2\text{O} = \text{MoOCl}_3 + \text{HCl} + \text{FeCl}_2$ . The formation enthalpy of the components of this reaction is indicated in table 3, taken from the papers (Refs 6,12,2). The formation enthalpy for  $\text{MoCl}_4$  was determined at  $-(114 \pm 3)$  kcal/mol. This value coincides with the value obtained in the paper (Ref 6) from tensimetric data for the dissociation reaction of  $\text{MoCl}_5$  and its formation enthalpy.

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SOV/54-59-2-10/24

On the Investigation of Molybdenum Halides. Synthesis and Determination of  
Formation Enthalpy of Molybdenum Tetrachloride

There are 2 figures, 3 tables, and 12 references, 5 of which  
are Soviet.

SUBMITTED: April 5, 1958

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5(2), 21(1)

AUTHORS:

SOV/78-4-1-7/48  
Shchukarev, S. A., Vasil'kova, I. V., Drozdova, T. M.,  
Martynova, N. S.

TITLE:

III. The Energetics of Solid Uranium Oxyhalides in the Light of  
the Substitution Principle (III. Energetika tverdykh oksi-  
galidov urana v svete printsipa zameshcheniya)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 1, pp 33-38  
(USSR)

ABSTRACT:

The  $\Delta H$  value for the formation of  $UBr_4$  was determined and it  
was found that this value is -214.9 kcal/g-atom in contrast  
to the value -211.3 kcal suggested by D. Kats and Ye. Rabino-  
vich (Ref 6). This value was found by determining the solution  
heat of  $UBr_4$  and  $UCl_4$  in hydrochloric acid solutions of iron  
chloride. The value  $\Delta H$  for the formation of  $UBr_4$  was determined  
according to the reaction  $U_{solid} + 2Br_{2gas} = UBr_{4solid}$ .

Figure 1 shows the formation enthalpies of the chlorides,  
bromides, oxides, oxychlorides, and oxybromides of uranium. The  
figure shows that the curves of the solid oxides are lower than

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